

**Total Synthesis Hot Paper**

How to cite: *Angew. Chem. Int. Ed.* **2021**, *60*, 6938–6942
 International Edition: doi.org/10.1002/anie.202016072
 German Edition: doi.org/10.1002/ange.202016072

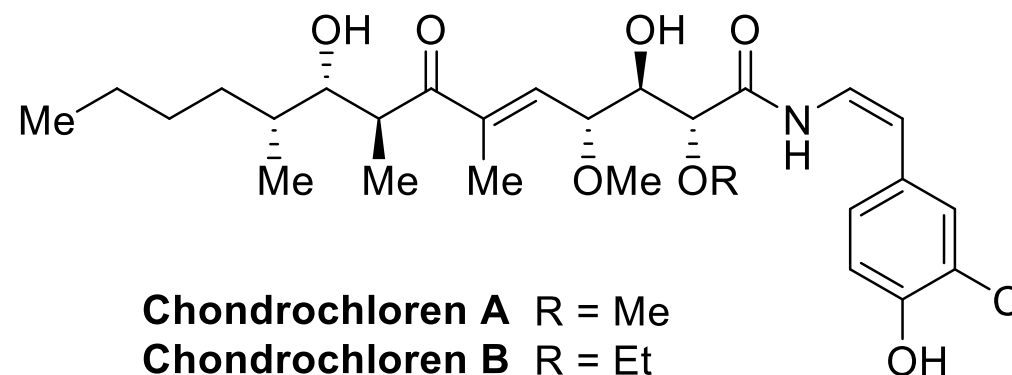
Jiangpeng Liu
 Liu Research Group
 3/23/2021

The Total Synthesis of Chondrochloren A

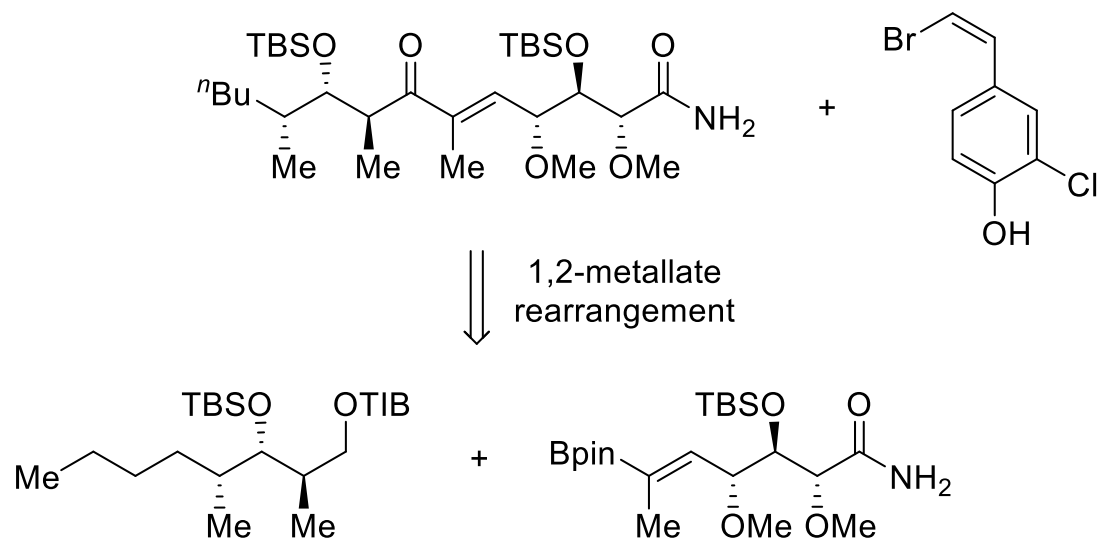
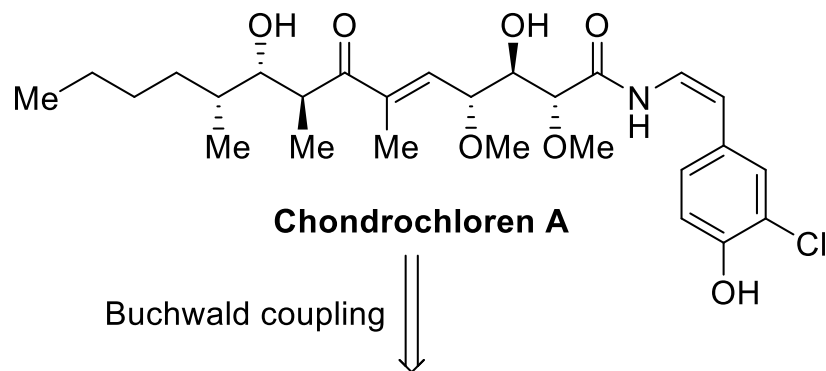
*Yannick Linne, Elisa Bonandi, Christopher Tabet, Jan Geldsetzer, and Markus Kalesse**

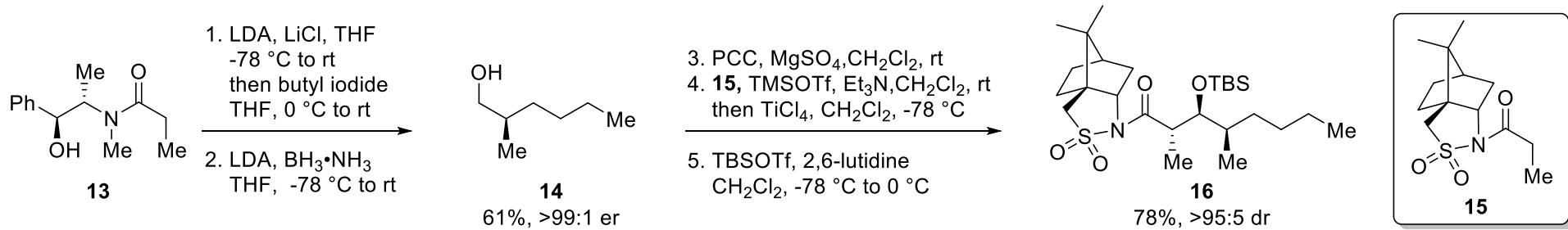
Introduction:

- Chondrochloren A was isolated from myxobacterium *Chondromyces crocatus* (Cmc5) in 2003, which is a secondary metabolite.
- It exhibits 3 distinct segments with synthetically challenging subunits: polyketide, triol, (Z)-enamide.
- Using established aldol chemistry leads to undesired stereochemical outcome, which was overcome by 1,2-metallate rearrangement.

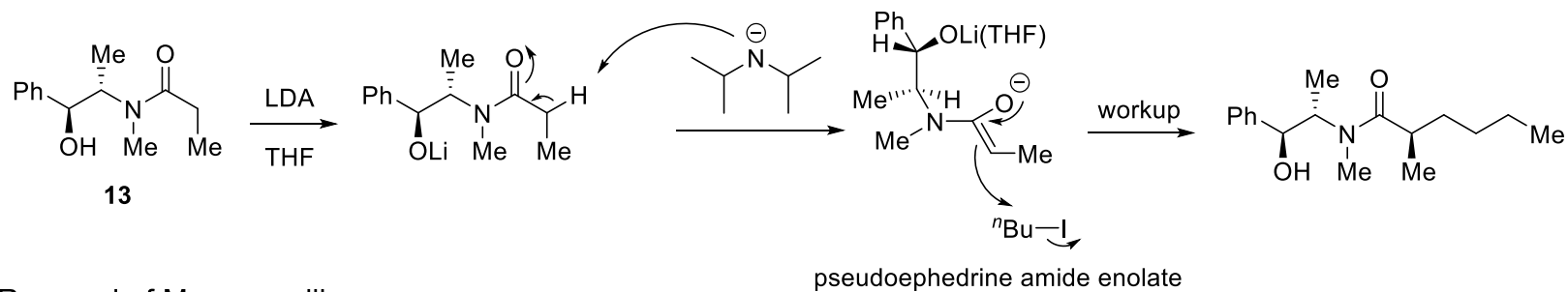


Retro-synthetic route



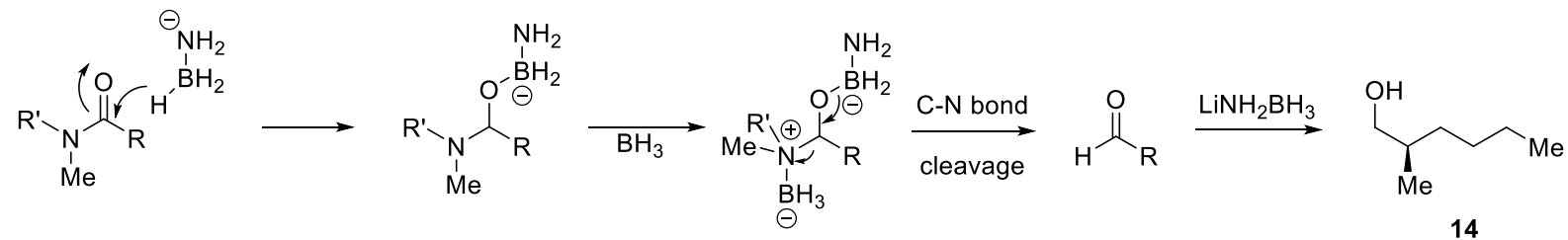


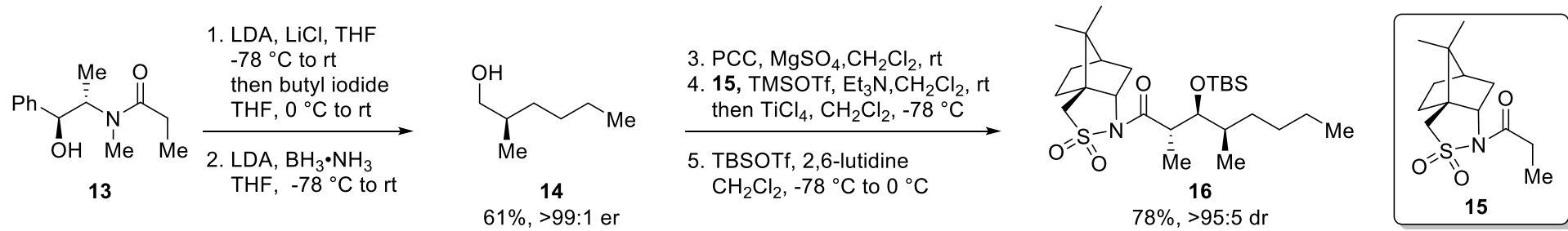
Myers alkylation:



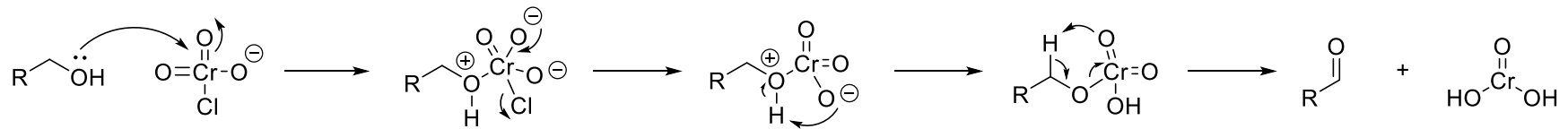
Removal of Myers auxiliary:

LDA + NH₃BH₃ → LiNH₂BH₃ lithium amidotrihydroborate (LAB)

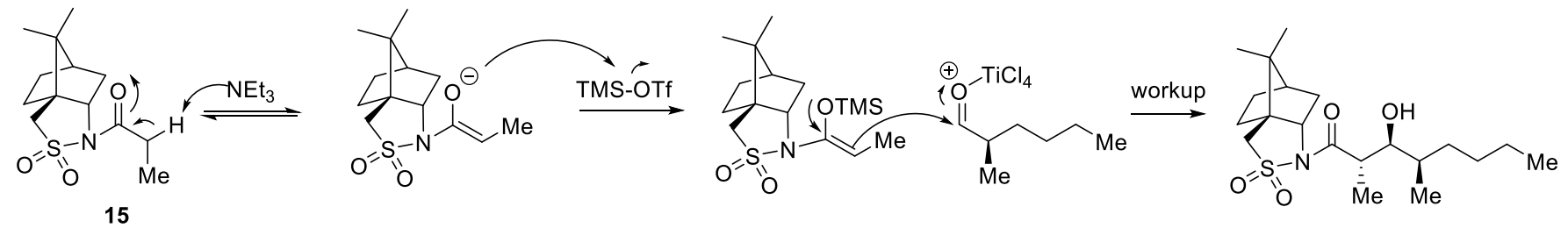




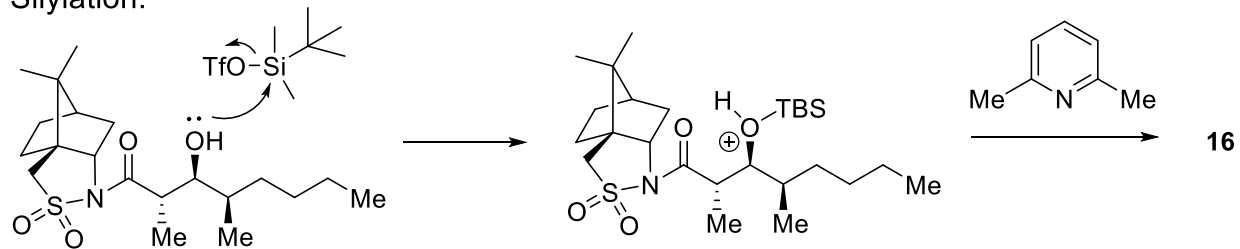
PCC oxidation:

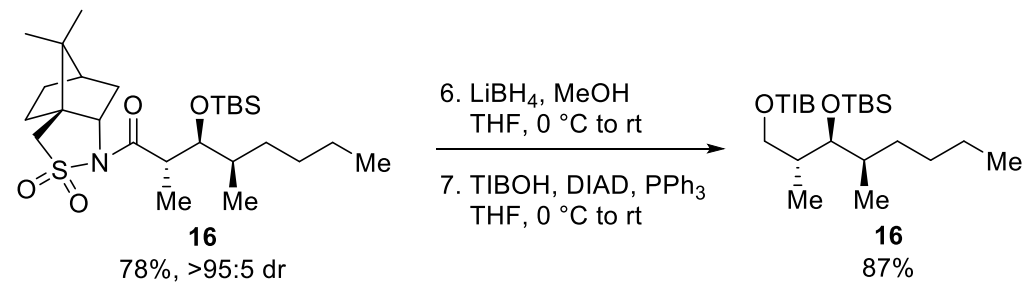


Oppolzer aldol reaction:

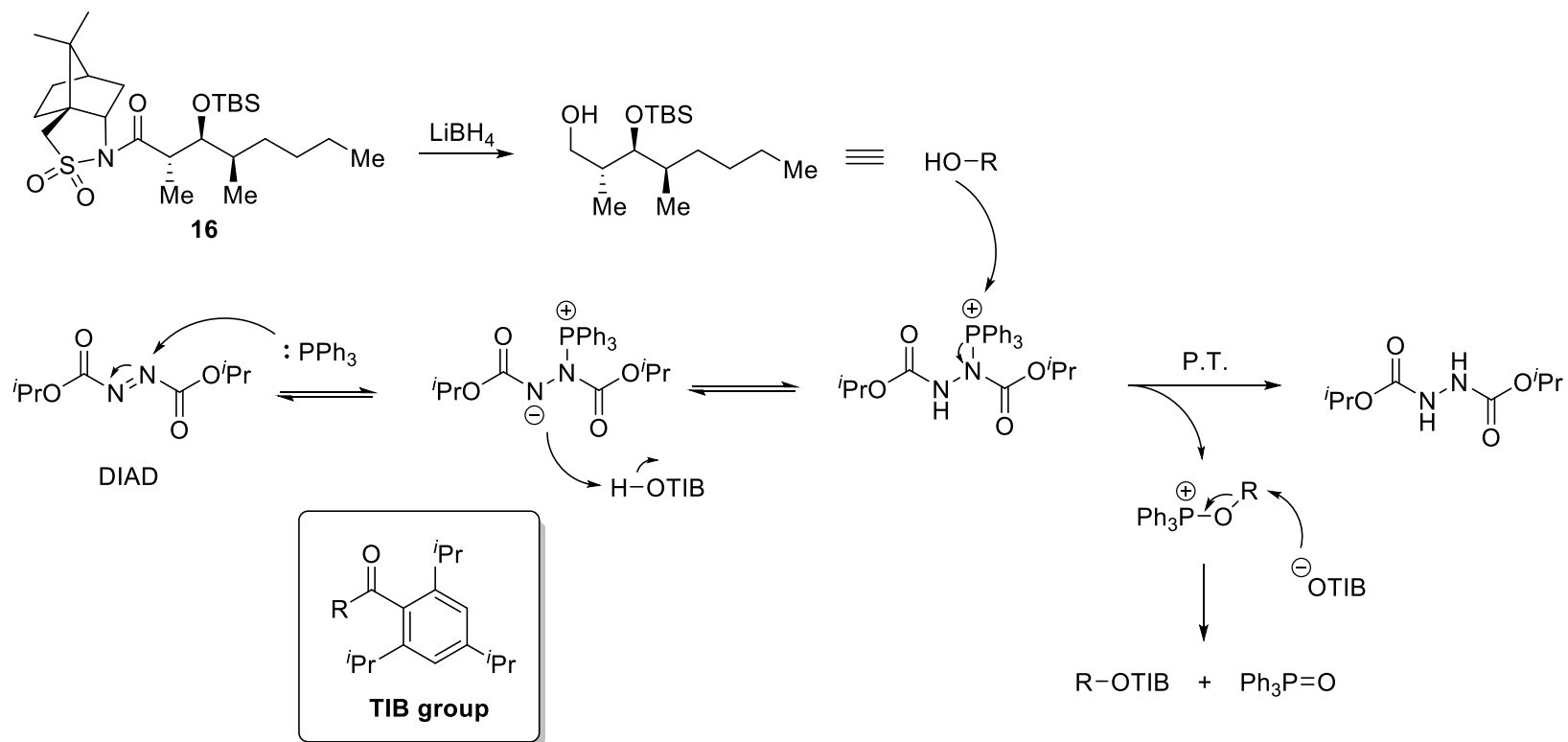


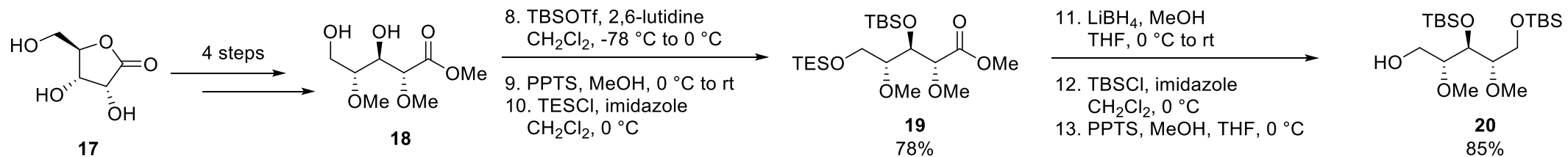
Silylation:



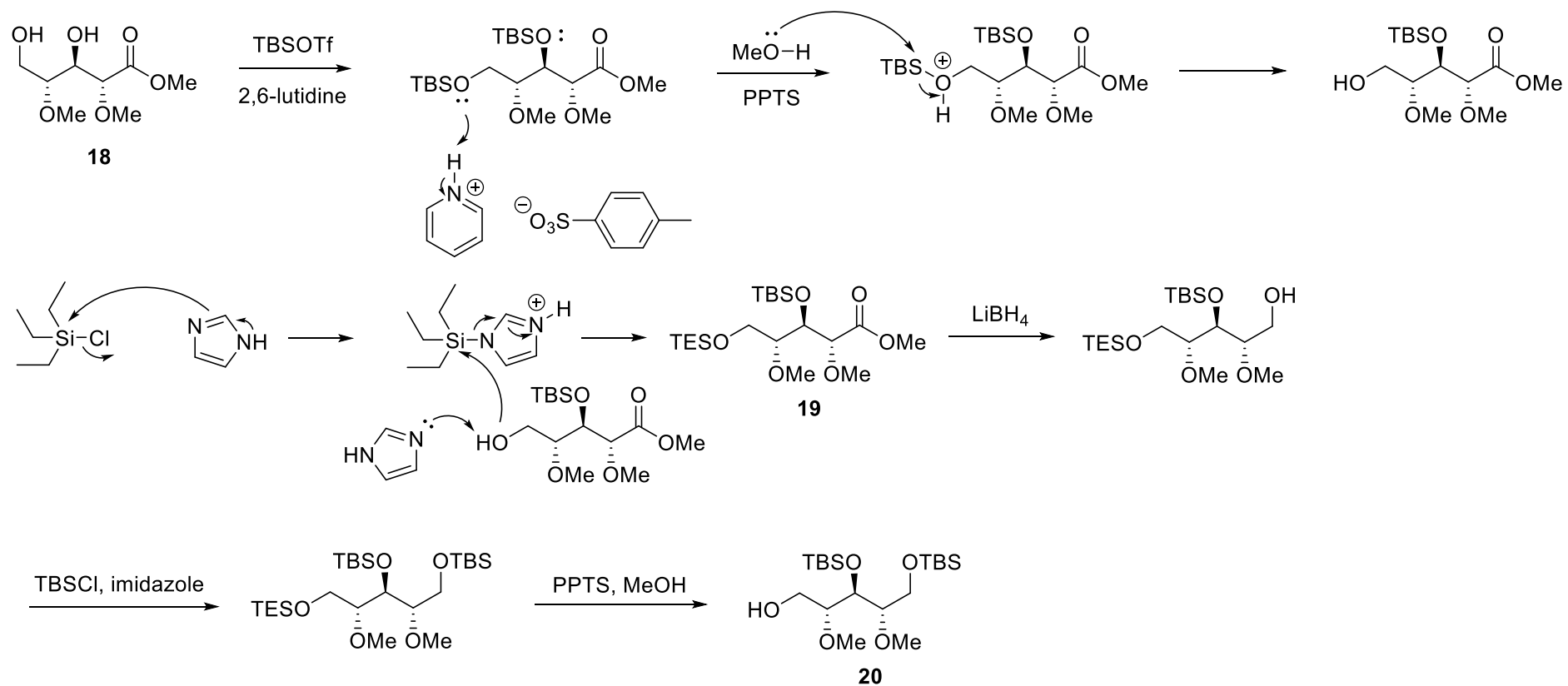


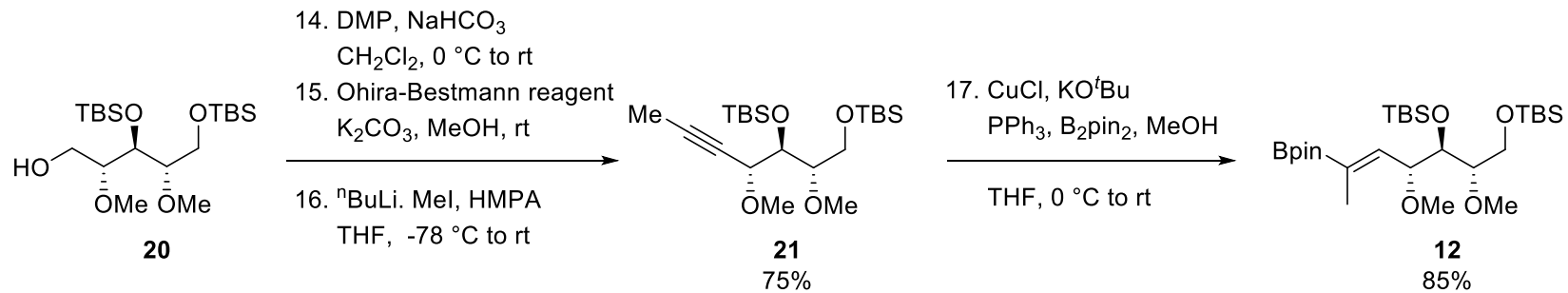
Mitsunobu reaction:



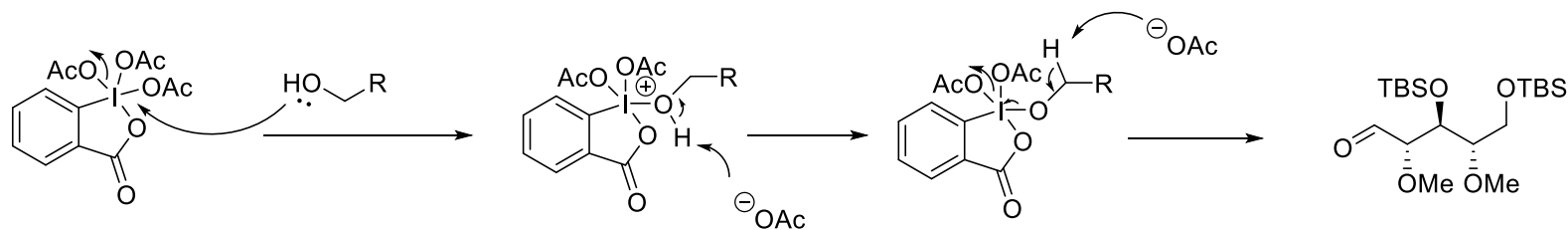


Protection and deprotection of alcohol :

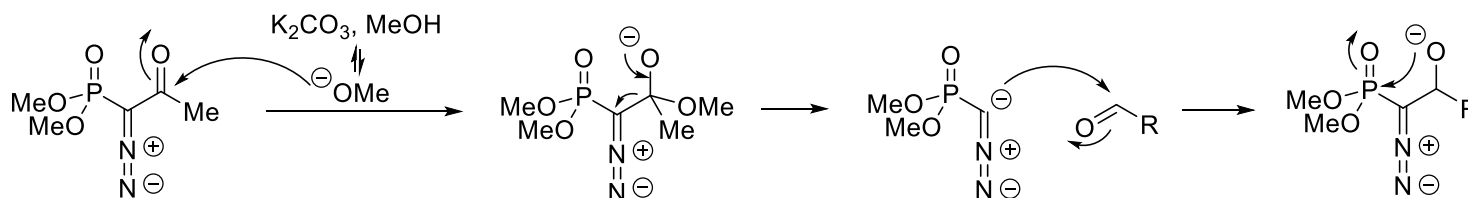




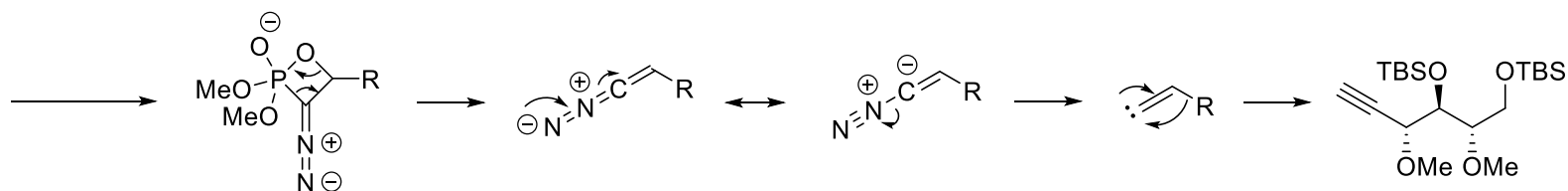
Dess-Martin oxidation :

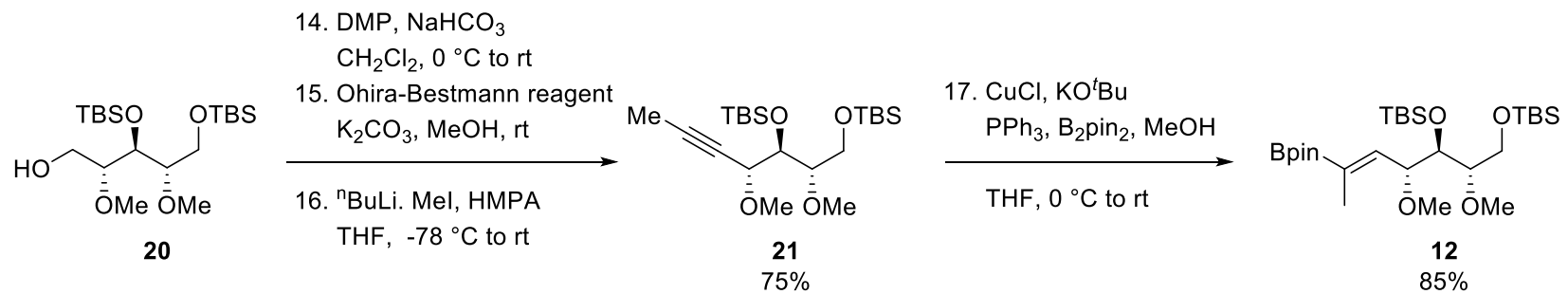


Seyferth–Gilbert homologation:

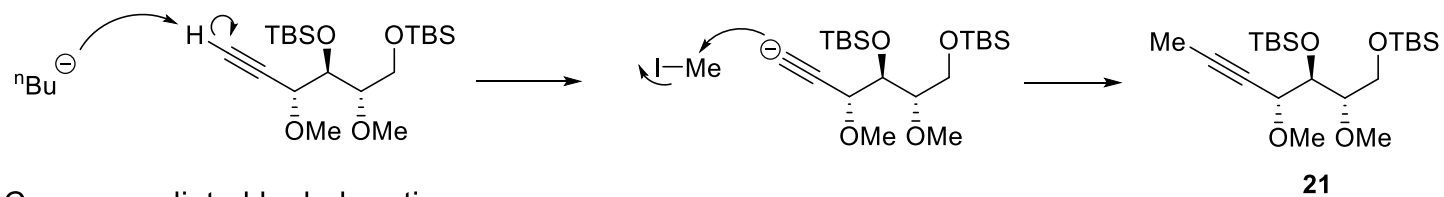


Ohira-Bestmann reagent

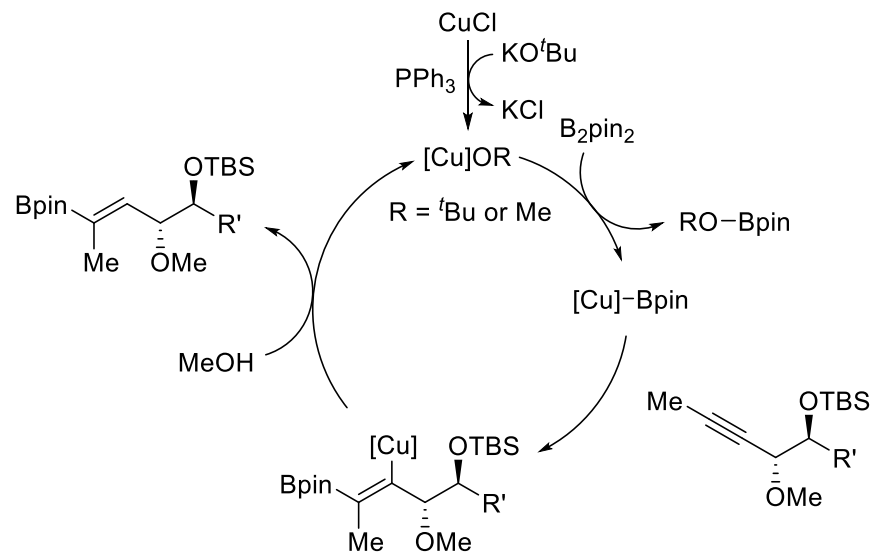


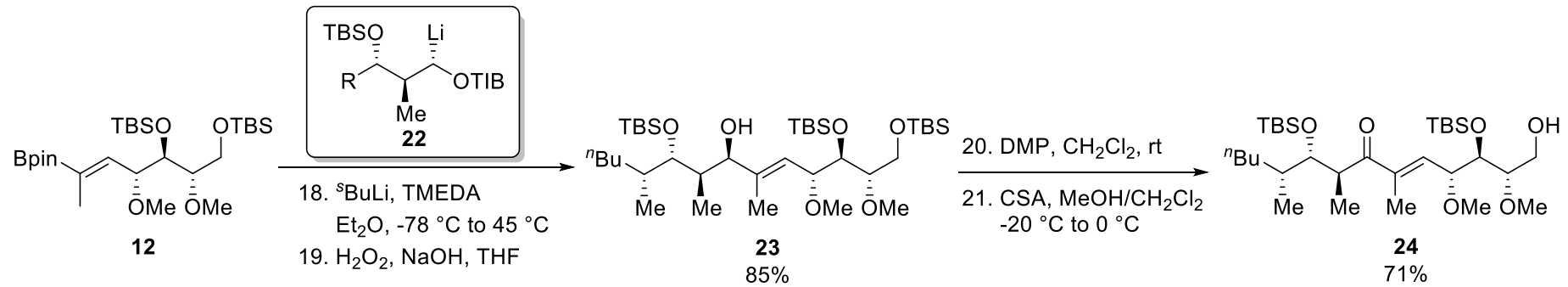


Methylation:

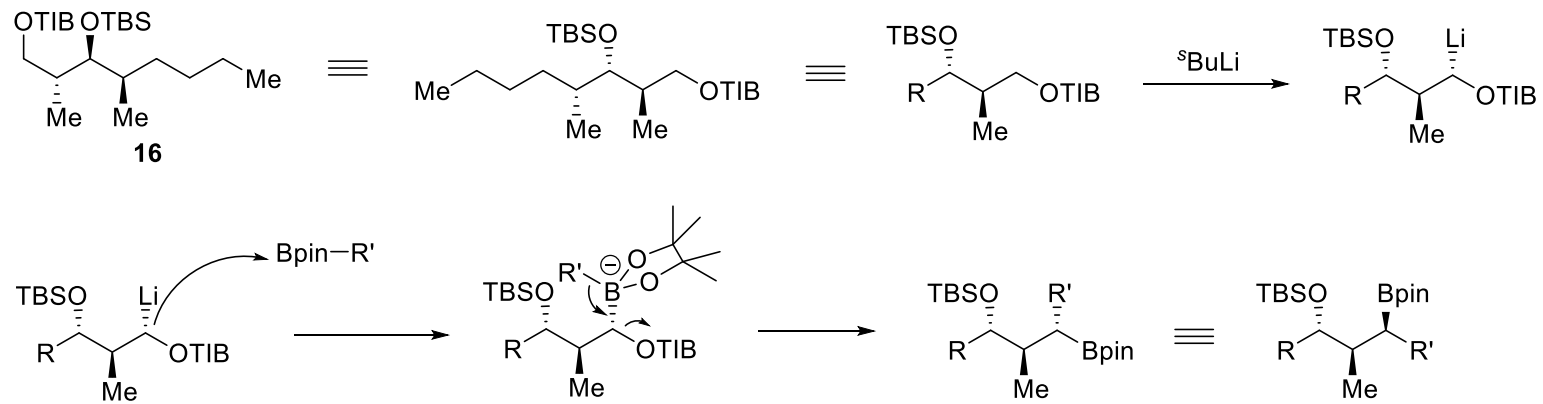


Copper-mediated hydroboration:

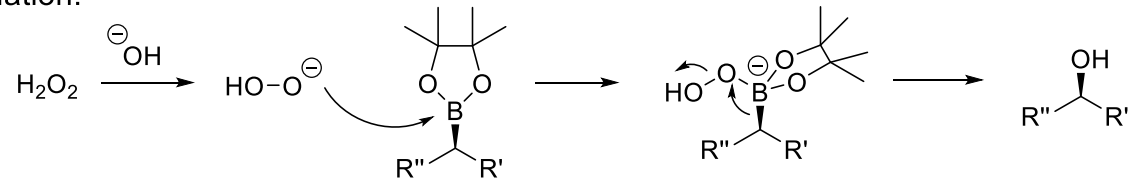


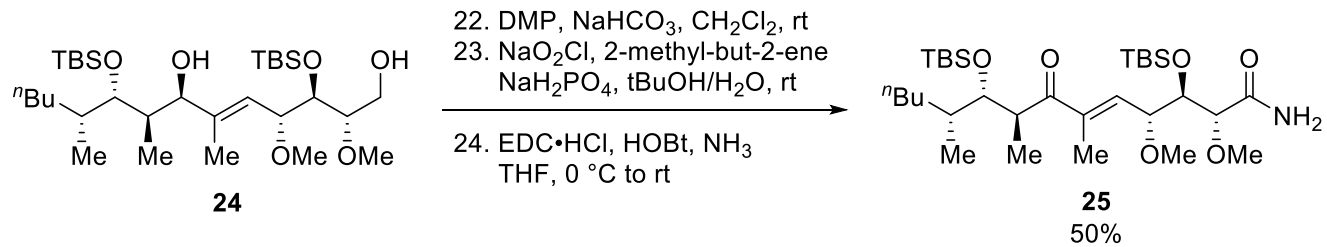


1,2-metallate rearrangement:

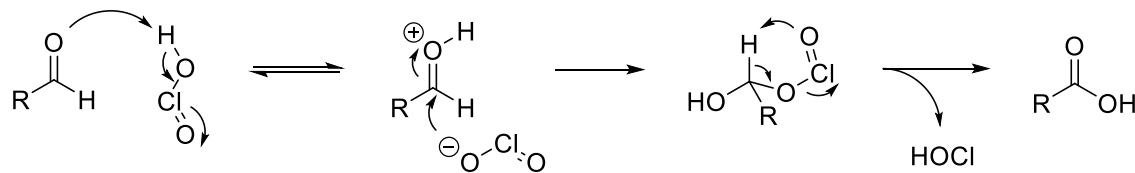


Oxidation:

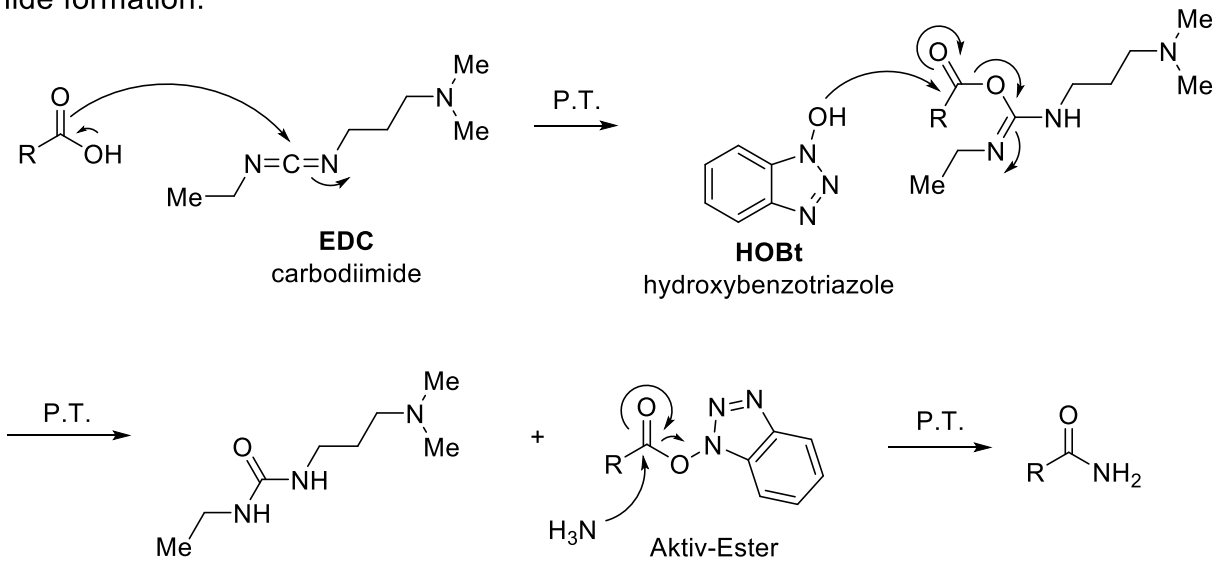


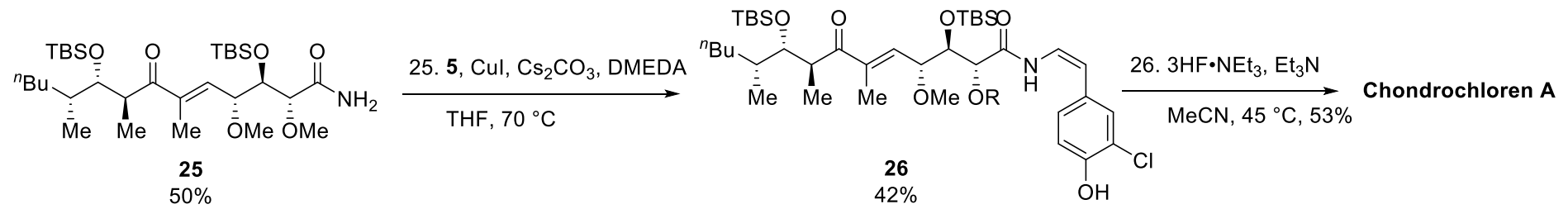


Pinnick oxidation:

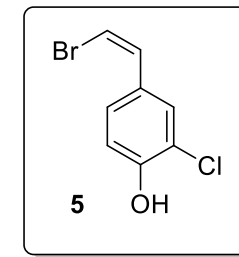
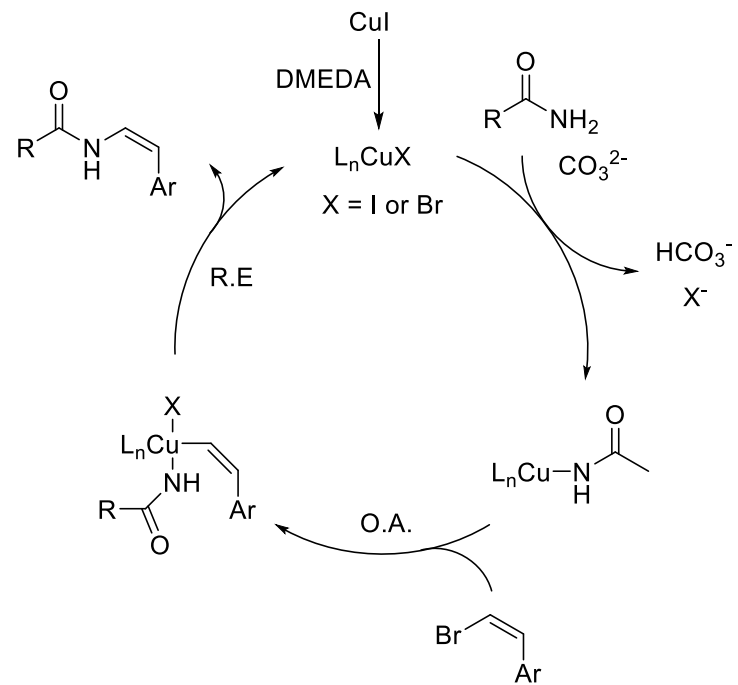


Amide formation:





Buchwald coupling:



Thanks for your attention!